Protecting Your Appliances & Electronics in Germany

The standard household electrical outlet in most of Europe -- including Germany, -- packs 220-240 volts, twice the standard household voltage in North America. A normal 110-volt electrical appliance designed for use in the US will provide a nice fireworks display -- complete with sparks and smoke -- if plugged into a German outlet.

If you must use US appliances or devices, it can be done, but you need to be aware of the problems involved, as well as the pros and cons of various solutions. Unfortunately, claims submitted for electrical items damaged due to power surges or improper voltages are not usually payable by the Government.

It is easy to buy plug adapters that convert North American-style flat-pronged plugs to fit European round “Schuko” outlets; however, this only solves half the problem. It doesn't help with the voltage disparity. In most cases, you will need to buy a voltage transformer or converter.

However, some items are best left in storage until your return to the United States, rather than converted. Clocks, microwaves or anything else that depends on the alternating current (AC) cycle cannot be easily converted. AC in Europe is 50 cycles per second (50 hertz, Hz), whereas the AC in the US and Canada is 60 Hz. Your U.S. electric clock will run too slowly in Europe because of the 10-hertz difference. An electric clock will loose ten minutes every hour.

There are basically two kinds of voltage converters. One is for low wattage devices, such as electric razors or radios that use less than about 50 watts. Bigger items that use more voltage -- TV sets, irons, refrigerators, etc. -- require a more heavy-duty (and heavier) voltage converter. These transformers can weigh a lot and be expensive.

Frequency and voltage surges are prevalent in many countries. Therefore, some additional power protection devices may be necessary, including: surge protectors, heavy duty grounded transformers, voltage stabilizers and uninterruptible power supplies. For example, in Germany the voltage it 220, but may fluctuate up to 240 volts. The 110-volt outlets in government housing may fluctuate up to 130 volts because these outlets generally operate off a fixed transformer which simply reduces the German current by 110-volts and does not take power surges or current fluctuations into account. Power surges are everyday occurrences. Some of them are small, while others are much larger. The bottom line is that all of them may destroy your equipment sooner or later. Surge protection devices are not 100% effective, but provide a valuable additional safeguard for all types of electric and electronic equipment from the destructive high-voltage fluctuations that are associated with lightning and other power surges.